Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
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Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF	)	ET Docket No. 10-235

COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

Michael F. Altschul
Senior Vice President and General Counsel

Christopher Guttman-McCabe
Vice President, Regulatory Affairs

Scott K. Bergmann
Assistant Vice President, Regulatory Affairs

CTIA – The Wireless Association®
1400 Sixteenth Street, NW
Suite 600
Washington, DC 20036
(202) 785-0081

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COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

CTIA – The Wireless Association® ("CTIA") hereby files these Comments in response to the Commission's Notice of Proposed Rulemaking ("*TV Spectrum Innovation NPRM*") regarding the repurposing of a portion of the UHF and VHF frequency bands currently used for broadcast television to enable fixed and mobile wireless communications services in that spectrum.[1] CTIA has been a strong advocate for the allocation of additional spectrum for mobile wireless broadband services, and believes that additional spectrum is key to continued innovation, consumer satisfaction, and U.S. technology leadership. CTIA strongly supports the reallocation of broadcast TV spectrum that will play a critical role in addressing the looming spectrum crunch and enabling the deployment of next-generation wireless broadband networks. Moreover, as CTIA explains in these comments, the *TV Spectrum Innovation NPRM* proposals for TV broadcast spectrum and technical requirements are excellent initial steps in providing the framework for incentive auctions.

I. INTRODUCTION AND SUMMARY

The President, Congress, Federal Communications Commission ("FCC"), National Telecommunications and Information Administration ("NTIA"), and other policymakers have

[1] *Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF*, Notice of Proposed Rulemaking, FCC 10-196 (2010) ("*TV Spectrum Innovation NPRM*").

recognized that mobile broadband services are critical to the U.S. economy. CTIA is pleased that the *TV Spectrum Innovation NPRM* initiates the process for reallocation of spectrum from broadcast television use to mobile broadband. With over 300 million American consumers relying upon the wireless industry to provide voice and high speed data services, the time is ripe for the identification of significant allocations of new spectrum. CTIA commends the Commission for undertaking this effort and echoes the many who have voiced their support for the repurposing of broadcast television spectrum.

CTIA also strongly supports the Commission's efforts to gain authority to use voluntary incentive auctions. The potential for such a program is buttressed by the recent joint White Paper provided by CTIA and the Consumer Electronics Association ("CEA") that demonstrates incentive auctions for 120 MHz of television spectrum could conceivably lead to as much as $33 to $34 billion in revenue being generated for the U.S. Treasury. CTIA welcomes the initiative supported by the White House and Commission to establish incentive auctions and enable the marketplace to determine the most rational use of scarce spectrum resources.

Finally, the *TV Spectrum Innovation NPRM* proposals for TV broadcast spectrum and technical requirements are excellent initial steps in providing the framework for incentive auctions. First, CTIA believes that the Commission's proposal to add fixed and mobile wireless allocations to TV broadcast spectrum will promote wireless use of the band and will provide the FCC with maximum flexibility in creating a new band plan. CTIA also supports the Commission's efforts to continue to explore channel sharing opportunities and to undertake efforts to improve VHF spectrum, as outlined by the *TV Spectrum Innovation NPRM*. CTIA strongly agrees with the Commission that by taking the steps proposed in the *TV Spectrum Innovation NPRM* and establishing incentive auctions, the Commission will help "spur ongoing

innovation and investment in mobile and ensure that America keeps pace with the global wireless revolution."[2] In addition to freeing up valuable and underutilized spectrum for mobile broadband services, these proposals also offer substantial benefits for broadcasters and those consumers who still utilize over-the-air programming. The proposals outlined in the FCC's NPRM coupled with an incentive auction would allow broadcasters to continue to offer over-the-air television, unless they voluntarily decide to surrender their license, would facilitate the deployment of promising new technology, and would afford participating broadcasters an infusion of capital, as well as generating a significant financial contribution to the U.S. Treasury and countless benefits for the American public.

II. ADDITIONAL SPECTRUM FOR MOBILE WIRELESS BROADBAND SERVICES IS A NATIONAL IMPERATIVE

Both the Federal Communications Commission and the Administration have recognized the critical role played by mobile wireless broadband in American innovation and commerce. Indeed, "[m]obile broadband represents the convergence of the last two great disruptive technologies – Internet computing and mobile communications – and may be more transformative than either of these previous breakthroughs."[3] Acknowledging the key role of wireless to America's technology future, President Obama recently stated a goal of making next-generation wireless broadband coverage available to 98 percent of Americans within the next five years.[4] However, the Commission has correctly recognized that "[t]o seize the opportunities

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[2] *Id.* at ¶ 1.

[3] Federal Communications Commission, *Connecting America: The National Broadband Plan* at 75 (2010) ("*National Broadband Plan*").

[4] President Barack Obama, 2011 State of the Union Address (Jan. 25, 2011), *available at* http://abcnews.go.com/Politics/State_of_the_Union/state-of-the-union-2011-full-transcript/story?id=12759395.

of our mobile future, we need to tackle the threats to our invisible infrastructure. We need to free up more spectrum."[5]

CTIA has consistently demonstrated that there is a desperate need for additional spectrum for mobile broadband services to accommodate demand and promote future innovation. For example, in September 2009, CTIA provided a demand forecast for mobile broadband that demonstrated the country was facing a near-term shortage in spectrum resources.[6] In this same filing, CTIA noted the extensive efforts by other countries to identify and allocate more spectrum – and that the ITU had estimated that commercial wireless would need an additional 800 MHz of spectrum in the U.S. to meet surging demand for mobile broadband services.[7] Further, in October 2009, CTIA provided forecasts from Cisco that mobile data traffic will double every year between 2008 and 2013, resulting in traffic 66 times 2008 levels.[8]

More recently, wireless market growth has conclusively and consistently demonstrated that mobile wireless broadband is currently experiencing explosive growth that is placing considerable strain on wireless networks. According to the most recent Cisco forecast, North American wireless networks carried nearly 49,000 terabytes per month in 2010.[9] Cisco projects

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5 Julius Genachowski, Chairman, Federal Communications Commission, Prepared Remarks at the 2011 International Consumer Electronics Show (Jan. 7, 2011) ("Genachowski CES Remarks"), *available at* http://www.fcc.gov/Daily_Releases/Daily_Business/2011/db0107/DOC-303984A1.pdf.

6 Letter from Christopher Guttman-McCabe, CTIA to Chairman Julius Genachowski et al., Federal Communications Commission, GN Docket No. 09-51 (Sept. 29, 2009).

7 *Id.* at 2, 16-18.

8 Comments of CTIA – The Wireless Association® NBP Public Notice #6, GN Docket No. 09-51, at 3-4 (Oct. 23, 2009).

9 Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2010-2015, at 19, Table 9 (2011), at http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf.

that North American wireless networks will carry nearly one million terabytes per month by 2015.[10] The following chart shows how that increase is happening. As mobile consumers move from voice-centric to intensive data-centric use, the chart illustrates the impact on the network. All of the different potential data uses have a dramatically more significant impact on a mobile network. This impact will only increase as data use increases.

Application	Bandwidth
Reading Text	300 bps (bits per second)
Voice	10 to 30 kbps (thousand bits per second)
Music streaming	30 to 300 kbps
E-Mail	30 kbps to 1 Mbps (million bits per second)
Web Browsing	32 kbps to 1 or higher Mbps
Streaming Video	200 kbps (small screen) to 4 Mbps
Basic Internet	1-5 Mbps
High-Definition TV	7.5 to 9 Mbps
Enterprise Applications	1 to 10 Mbps
High-Speed Internet	10 Mbps

Source: Rysavy Research

The FCC has recognized the growth in mobile broadband traffic and the need for additional spectrum. An October 2010 FCC Technical Paper found that in the latest six months of Commission reporting, subscriptions to mobile data services increased by 40 percent, and that there has been an increase of over 450 percent in the amount of data consumed per line between

10 *Id.*

the first quarter of 2009 and the second quarter of 2010.[11] Moreover, the October 2010 Technical Paper concluded that, even using conservative assumptions about market factors influencing spectrum need, an additional 275 megahertz of spectrum will be required to meet mobile data demand in 2014.[12]

In response to this well-documented explosion in demand, the Commission found in the National Broadband Plan that 500 megahertz of spectrum should be made available for mobile broadband over the next ten years to "meet growing demand for wireless broadband services, and to ensure that America keeps place with the global wireless revolution."[13] In making this recommendation, the National Broadband Plan stated that "[i]f the U.S. does not address [the spectrum shortage] promptly, scarcity of mobile broadband could mean higher prices, poor service quality, an inability for the U.S. to compete internationally, depressed demand and, ultimately, a drag on innovation."[14] President Obama also directed the NTIA, together with the FCC, to make available a total of 500 MHz of spectrum over the next ten years that would be suitable for mobile and fixed broadband use.[15] President Obama found that "[t]his new era in global technology leadership will only happen if there is adequate spectrum available to support

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11 FCC Staff Technical Paper, *Mobile Broadband: The Benefits of Additional Spectrum* at 4 (Oct. 2010) ("Spectrum Summit Technical Paper").

12 *See id.* at 17.

13 *National Broadband Plan* at 84.

14 *Id.* at 77.

15 Presidential Memorandum: Unleashing the Wireless Broadband Revolution (June 28, 2010), *available at* http://www.whitehouse.gov/the-press-office/presidential-memorandum-unleashing-wireless-broadband-revolution.

the forthcoming myriad of wireless devices, networks, and applications that can drive the new economy."[16]

Specifically, the National Broadband Plan found that 120 MHz of broadcast television spectrum should be targeted for reallocation to mobile broadband.[17] This spectrum "has excellent propagation characteristics that make it well-suited to the provision of mobile broadband services, in both urban and rural areas."[18] When weighing the benefits of reallocating underutilized broadcast spectrum, the Commission must take into account that consumer demand for wireless broadband services and the spectrum required to meet that demand vastly outweigh consumer demand and spectrum needs for over-the-air television. While the FCC's proposals contemplate the continued availability of over-the-air broadcast television, it remains true that the benefits of over-the-air broadcast services can be enjoyed by virtually every American citizen *without the use of over-the-air broadcast spectrum*. In fact, the vast majority of Americans do so. Most members of the public receive those services through either cable or satellite services. Moreover, the number of people who use over-the-air broadcasting has decreased by 56 percent over the last ten years.[19]

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16 *Id.*

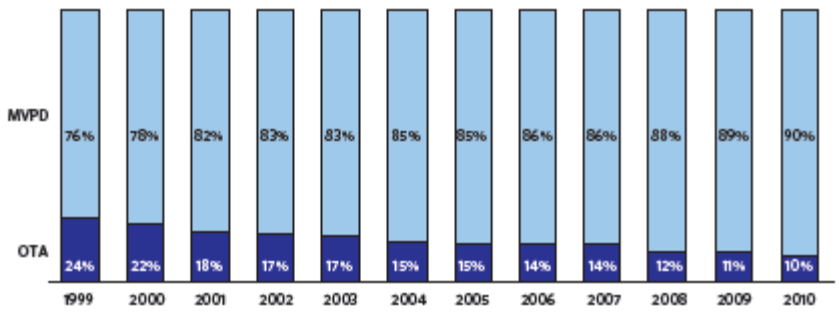
17 *National Broadband Plan* at 88-93.

18 *Id.* at 88.

19 Blair Levin, Let's Make a Deal, Broadcasters, Mobile Broadband, and a Market in Spectrum, The Progress & Freedom Foundation, Progress on Point, Moderated Panel Discussion Transcript at 22 (Dec. 2009), *available at* http://www.pff.org/issues-pubs/pops/2009/pop16.27-broadcasters-mobile-broadband-spectrum-auction.pdf.

The following chart illustrates the dramatic decline in over-the-air broadcast viewers.

Exhibit A:
OTA vs. Multichannel Video Programming Distributor (MVPD) Share of TV Households[47]



Source: FCC OBI Technical Paper No. 3, Spectrum analysis: OPTIONS FOR BROADCAST SPECTRUM, June 2010

In contrast to the over-the-air broadcast television, mobile wireless broadband services are not delivered in any other fashion, and demand from residential, enterprise, and institutional users has grown exponentially.

CTIA notes that, by making underutilized broadcast spectrum available for mobile wireless broadband services, the Commission can enable the licensing of large, contiguous blocks of spectrum, which will be key to the deployment of next-generation wireless broadband networks.[20] The ambitious goals of the National Broadband Plan and the Obama Administration cannot be met in the absence of additional spectrum, and there can be no doubt that the wireless industry desperately needs more spectrum to "enable mobile network expansion and technology upgrades."[21] CTIA strongly supports the reallocation of broadcast TV spectrum that will play a

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20 Indeed, the National Broadband Plan acknowledged that the progression to 4G technologies may require larger blocks to accommodate wider channel sizes. *National Broadband Plan* at 78.

21 *TV Spectrum Innovation NPRM* at ¶ 11.

critical role in addressing the looming spectrum crunch and enabling the deployment of next-generation wireless broadband networks.

III. CTIA SUPPORTS THE USE OF INCENTIVE AUCTIONS FOR BROADCAST TELEVISION SPECTRUM REALLOCATION

CTIA welcomes the initiative supported by the White House and the Commission to establish voluntary incentive auctions to clear TV broadcast spectrum for licensed mobile wireless broadband use. CTIA agrees with the President that voluntary incentive auctions are "critical" to realizing the National Broadband Plan's and Administration's wireless policy objectives.[22] As Chairman Genachowski has explained, incentive auctions would be "a big win for our country. Consumers, companies and our economy would benefit from freeing up spectrum for mobile broadband. Auctions of contiguous spectrum would unlock value and billions of dollars. And the current holders of spectrum that contribute their spectrum to an auction can receive a capital infusion and stay in the video business."[23]

Incentive auctions would enable a highly efficient and productive reallocation of underutilized TV broadcast spectrum. First, incentive auctions will allow the marketplace to determine the most rational use of scarce spectrum resources. When applied to broadcast television spectrum, incentive auctions could permit the reallocation of at least 120 MHz of new, mobile broadband service spectrum that would help alleviate the nation's spectrum crunch and enable further innovation in the wireless space. Second, incentive auctions would result in considerable revenues for the United States Treasury and provide broadcasters with an infusion of capital with minimal disruption to customers.

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22 The White House, Office of the Press Secretary, President Obama Details Plan to Win the Future Through Expanded Wireless Access (Feb. 10, 2011), *available at* http://www.whitehouse.gov/the-press-office/2011/02/10/president-obama-details-plan-win-future-through-expanded-wireless-access.

23 Genachowski CES Remarks at 7.

Last month, CTIA and the CEA filed a White Paper with the Commission demonstrating the win-win nature of voluntary incentive auctions. To determine the potential revenue that could be realized by the auctioning of 120 MHz of TV broadcast spectrum, CTIA and CEA developed a model utilizing 6,048 data points from 13 previous Commercial Mobile Radio Service ("CMRS") spectrum auctions to analyze the historical drivers of spectrum price and to estimate their probable effect on an auction of repurposed television spectrum.[24] Based on this model, CTIA and CEA estimated that under certain, practical assumptions, spectrum licenses auctioned in the broadcast television band can be expected to be valued at $0.978 per MHz-POP, with an approximate total auction revenue of $36.3 billion.[25] Moreover, CTIA and CEA's analysis concluded that outside the Top-30 markets, sufficient spectrum should exist such that, in general, no stations will need to surrender their over-the-air channels.[26]

CTIA and CEA found that, when taking into account the enterprise value of licensees that may surrender their channels and the costs associated with channel repacking, the estimated net proceeds of an incentive auction ranges from $33 billion to $34 billion. This is a conservative estimate, and in light of spectrum valuations in recent FCC auctions the net proceeds could be much higher. From a consumer's standpoint, changes associated with channel repacking should have no real impact, other than the need to cause the television or receiver to perform a one-time channel "re-scan" at a set cut-over date.

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[24] CTIA – The Wireless Association® and Consumer Electronics Association, Broadcast Spectrum Incentive Auctions White Paper at 5 (Feb. 15, 2011), *available at* http://www.cesweb.org/shared_files/edm/Press/Spectrum_Whitepaper_FINAL.pdf ("CTIA/CEA White Paper").

[25] *Id.*

[26] *Id.* at 13.

As CTIA and CEA noted in the White Paper, the analysis conducted was intended to provide a foundation for evaluating the important issues associated with voluntary incentive auctions for TV broadcast spectrum, not to create assumptions about potential premiums that might be paid to broadcasters to provide an incentive or to foreclose refinements to the auction process. Nonetheless, CTIA continues to believe that voluntary spectrum auctions would reap considerable benefits for wireless consumers, television broadcasters, and the federal government.

IV. CTIA SUPPORTS EFFORTS THAT WILL ENABLE REALLOCATION OF THE BROADCAST TELEVISION SPECTRUM

CTIA believes that the *TV Spectrum Innovation NPRM* represents an important first step towards making at least 120 MHz of television broadcast spectrum available for wireless broadband services. In the *TV Spectrum Innovation NPRM*, the Commission makes a number of proposals regarding UHF and VHF television spectrum that are intended to make "a significant amount of new spectrum available for broadband" while "preserv[ing] [over-the-air TV] service as a healthy, viable medium."[27] CTIA supports these proposals and addresses each in turn. Additionally, CTIA reiterates its support for the exploration of "cellularization" as another tool to drive efficiency of use in the TV broadcast spectrum. CTIA believes that cellularization should be yet another voluntary option for broadcasters to consider and urges the Commission to not discard this possibility without further consideration.

In addition to freeing up valuable and underutilized spectrum for mobile broadband services, these proposals also offer substantial benefits for broadcasters and those consumers who still utilize over-the-air programming. The proposals outlined in the FCC's NPRM coupled with an incentive auction would allow broadcasters to continue to offer over-the-air broadcast

[27] *TV Spectrum Innovation NPRM* at ¶ 1.

television, unless they voluntarily decide surrender their license, would facilitate the deployment of promising new technology, and would afford participating broadcasters an infusion of capital, as well as generating a significant financial contribution to the U.S. Treasury and countless benefits for the American public.

A. Adding Fixed and Mobile Allocations to TV Broadcast Spectrum Will Provide the Commission With Needed Flexibility.

As stated above, CTIA agrees with the Commission's finding in the *TV Spectrum Innovation NPRM* and in the National Broadband Plan that UHF spectrum currently occupied by broadcast television represents a crucial source of spectrum and will play a key role in achieving the Commission's and Administration's wireless policy objectives. In keeping with its goal of making more spectrum available for mobile wireless broadband services, the Commission has proposed to make a significant portion of the broadcast television spectrum available for flexible use, including fixed and mobile wireless broadband services.[28]

The approach taken by the Commission in the *TV Spectrum Innovation NPRM* is consistent with its policy of deploying spectrum with flexible service rules, a policy that has promoted considerable innovation. When the Commission gave PCS and cellular licensees flexibility to provide virtually any service, mobile or fixed, it noted that this flexibility "will provide the most effective approach for meeting [the agency's] four objectives of universality, speed of deployment, diversity of services and competitive delivery."[29] Adoption of fixed and mobile co-primary allocations is also consistent with the Commission's proposed action

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[28] *Id.* at ¶ 16.

[29] *New Personal Communications Services*, Second Report and Order, 8 FCC Rcd 7700, 7712 at ¶ 23 (1993) (authorizing the PCS band primarily for mobile and portable communications and ancillary fixed communications).

regarding Mobile Satellite Service ("MSS") spectrum,[30] which received widespread support from a broad cross-section of commenters in that proceeding.[31]

CTIA believes that by adopting fixed and mobile allocations in the UHF band that are co-primary with broadcast operations, the Commission will take an important first step in making this spectrum available for wireless broadband services. Indeed, the Commission correctly observed that its proposed approach "will provide maximum flexibility in planning for the future assignment of a portion of the U/V Bands for flexible use, including new broadband services."[32]

B. The Commission Should Continue to Explore Opportunities for Channel Sharing.

In the *TV Spectrum Innovation NPRM*, the Commission states its belief that the option of channel sharing "in addition to aiding in the broadband goals of the [National Broadband Plan], could also be beneficial to the television industry and to viewers."[33] CTIA agrees, and believes that channel sharing is an innovative means of making more spectrum available for licensed wireless broadband services. The Commission envisions that under this framework, two broadcast stations could generally broadcast one primary high definition video stream each over a shared six-megahertz channel, or that more than two stations could broadcast in standard

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30 *Fixed and Mobile Services in the Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660.5 MHz, 1610-1626.5 MHz and 2483.5-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz*, Notice of Proposed Rulemaking and Notice of Inquiry, FCC 10-126 at ¶ 10 (July 15, 2010) ("*MSS Notice*").

31 *See, e.g.*, Comments of AT&T Inc., ET Docket No. 10-142 at 5-6 (filed Sept. 15, 2010); Comments of CDMA Development Group, ET Docket No. 10-142 at 3-4; Comments of Cricket Communications Inc., ET Docket No. 10-142 at 4-5 (filed Sept. 15, 2010); Comments of New DBSD Satellite Services G.P., ET Docket No. 10-142 at 13 (filed Sept. 15, 2010); Comments of EchoStar Satellite Services LLC, ET Docket No. 10-142 at 4-5 (filed Sept. 15, 2010); Comments of Iridium Satellite LLC, ET Docket No. 10-142 at 9 (filed Sept. 15, 2010); Comments of LightSquared Subsidiary LLC, ET Docket No. 10-142 at 10-11 (filed Sept. 15, 2010).

32 *TV Spectrum Innovation NPRM* at ¶ 17.

33 *Id.* at ¶ 18.

definition over a single channel.[34] Under this plan, each station will continue to be licensed and operated separately, have its own call sign, and be separately subject to the Commission's regulations.[35]

In a 2010 technical paper, the Commission's Omnibus Broadband Initiative ("OBI") investigated the spectrum reclamation benefits of channel sharing and determined that "up to six stations that do not broadcast in HD may choose to share a channel" and that sharing of six-megahertz channels by pairs of television stations "can produce spectrum efficiency benefits while allowing transmission of HD programming."[36] OBI concluded that channel sharing "could be a valuable mechanism to enable voluntary, market-based decisions on the part of some broadcast stations that wish to utilize smaller amounts of bandwidth highly efficiently, and in the process facilitate the spectrum reallocation recommended in the [National Broadband Plan]."[37]

The Commission's proposal to allow channel sharing will result in more efficient use of television spectrum, freeing up additional spectrum for wireless broadband. Further, this framework could also lead to cost savings and additional income for broadcast licensees, enabling the development of new programming and strengthening over-the-air broadcasting overall. Moreover, costs to reimburse broadcast television licensees in an incentive auction should be reduced under a channel sharing approach. Broadcasters could still receive full must carry rights on cable and satellite provider networks – meaning that the 90% of customers who receive their video programming in this fashion could still receive their content. At the same

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[34] *Id.* at ¶ 19.

[35] *Id.* at ¶ 21.

[36] Federal Communications Commission, Spectrum Analysis: Options for Broadcast Spectrum, OBI Technical Paper No. 3, at 15-16 (June 2010) ("Broadcast Spectrum Technical Paper").

[37] *Id.* at 23.

time, broadcasters will continue to provide over the air services to the remaining consumers while freeing up a television channel for mobile broadband services. Finally, CTIA also notes that because the channel sharing mechanism proposed by the Commission is voluntary, it can be presumed that those broadcast licensees who take advantage of this regime are doing so because it will yield financial or other benefits for the licensee. As such, CTIA urges the Commission to adopt changes to the broadcast rules to allow for channel sharing.

C. The Commission Should Undertake Its Proposed Efforts to Improve VHF Spectrum.

Finally, the Commission noted its interest in exploring the steps needed to increase the utility of VHF spectrum for television broadcasts.[38] CTIA supports the Commission's efforts to improve reception of VHF television service. By improving the VHF television spectrum and making it a more desirable option for broadcasters, the Commission may free up spectrum in the UHF band that can be used for wireless broadband service. While CTIA does not offer comment on the technical aspects of the Commission's proposal, it supports any improvements that can be accomplished for reception and use of VHF spectrum as a means to free up spectrum for innovative wireless uses and providing alternate spectrum for television broadcasting.

As noted in the CTIA/CEA White Paper, one of the options in an incentive auction would be to allow a broadcaster to voluntarily choose to relocate from an UHF TV channel to a VHF TV channel.[39] As is true with the channel sharing option described above, the television broadcaster could maintain its must carry rights on cable and satellite provider networks but move its over-the-air broadcasting to less favorable spectrum in return for compensation. As

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38 *Id.* at ¶ 42.

39 CTIA/CEA White Paper at 13.

such, CTIA believes that any Commission efforts to improve VHF reception and/or viability will make such a decision more desirable for existing broadcasters and should be explored.

D. The Commission Should Explore Cellularization As An Option For TV Broadcast Reallocation.

In the National Broadband Plan, the Commission found that transitioning TV broadcast stations to a cellular architecture could "reduce or eliminate the need for channel interference protections that result in only a fraction of the total spectrum allocated to broadcast TV being used directly by stations" and "facilitate broadcasters' offerings of converged broadcast/broadband services."[40] In a joint filing with the Commission, CTIA and CEA similarly supported a cellularized architecture for TV broadcast stations and CTIA echoes its support for further examination of changes to the broadcast television architecture that would free up additional spectrum for broadband.[41]

CTIA envisions a transition, funded by beneficiaries of newly-reallocated broadcast spectrum, from the current high power/high tower broadcast architecture into low power networks of distributed transmitters. A full power television operator would then have a new distributed network providing the ability to offer high definition television – or six digital multicasts – using a 6 MHz channel and 19.4 Mbps bitstream.[42] As CTIA and CEA noted previously, this should be technically in line with what broadcasters are able to offer today.[43] This architecture could eliminate extensive co-channel and adjacent channel separation

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40 National Broadband Plan at 92.

41 Comments of CTIA – The Wireless Association® and the Consumer Electronics Association on NBP Public Notice #26, Uses of Spectrum, White Paper Proposal: Exploring a Path for Next Gen Television and Next Gen Wireless Broadband Spectrum, GN Docket No. 09-47 (Dec. 22, 2009).

42 *Id.* at 5.

43 *Id.* at 5-6.

requirements and permit currently unused spectrum to be used for wireless broadband services. As CTIA and CEA observed, there currently exist considerable spectrum inefficiencies in the broadcast television infrastructure resulting from the use of a single, high powered transmitter.[44]

CTIA and CEA have demonstrated that adopting a cellularized architecture for broadcast television services would introduce an advanced and efficient television architecture while also opening up unused broadcast television spectrum for wireless broadband uses. Similarly, a Commission Technical Paper found that the potential spectrum dividend from cellularization "could be very high."[45] CTIA therefore asks the Commission to also consider allowing broadcast participants in an incentive auction the option to select a cellular architecture. To do so, the Commission would not have to modify any existing rules (as noted in the CTIA/CEA paper) but simply add this as another possibility for parties to choose from in the incentive auction.

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44 *Id.* at 6-9.

45 Broadcast Spectrum Technical Paper at 27.

V. CONCLUSION

CTIA applauds the Commission's *TV Spectrum Innovation NPRM* as a key first step towards fulfilling the National Broadband Plan's vision and reallocating 120 MHz of television broadcast spectrum for wireless services. CTIA believes that by implementing the proposals in the *TV Spectrum Innovation NPRM* and conducting voluntary incentive auctions for TV broadcast spectrum, the Commission will help ensure the continued innovation and competition that is the wireless industry's trademark.

Respectfully submitted,

By: */s/ Christopher Guttman-McCabe*

Christopher Guttman-McCabe
Vice President, Regulatory Affairs

Michael F. Altschul
Senior Vice President and General Counsel

Scott K. Bergmann
Assistant Vice President, Regulatory Affairs

CTIA – The Wireless Association®
1400 Sixteenth Street, NW
Suite 600
Washington, DC 20036
(202) 785-0081

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